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MAGNOLIA

Eight species of magnolia are native to the United States, the most important being southern magnolia and sweetbay. Magnolia wood resembles yellow-poplar in appearance and properties. It is light in color; the sapwood is white, the heartwood light to dark brown. Of moderate density, high in shock resistance, and easy to work, it is used chiefly for furniture, kitchen cabinets, and interior woodwork requiring paint finishes. Some is made into veneer for use in boxes and crates.

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MAGNOLIA

(*Magnolia grandiflora* and *Magnolia virginiana*)

Louis C. Maisenhelder [1]

DISTRIBUTION

The range of southern magnolia (*Magnolia grandiflora*) includes a narrow strip, approximately 100 miles wide, taking in the coast of South Carolina and the extreme southeast corner of North Carolina; roughly southern Georgia, Alabama, and Mississippi; the northern half of Florida; and parts of Louisiana, southern Arkansas, and east Texas (fig. 1). Its greatest abundance (and, therefore, commercial importance) is in Louisiana, Mississippi, and Texas, where it occurs on relatively moist bottomland sites. In the uplands, it grows on middle and lower slopes in deep rich soils and in branch heads.

The range of sweetbay (*Magnolia virginiana*) is similar to that of southern magnolia except that it extends farther north. The species grows along the Atlantic Coastal Plain from Long Island south through New Jersey and southeastern Pennsylvania to southern Florida, west to eastern Texas, and north into southern Arkansas and southwest Tennessee; also locally in eastern Massachusetts. Its greatest abundance is in eastern Alabama, Georgia, Florida, and South Carolina. In bottomlands, it occurs mainly east of the Mississippi River in muck swamps of the Coastal Plains. In uplands, it occurs only in moist streamheads of the lower Coastal Plain.

DESCRIPTION AND GROWTH

The magnolias are among the oldest tree species in the world, dating back almost to the age of the ginkos.

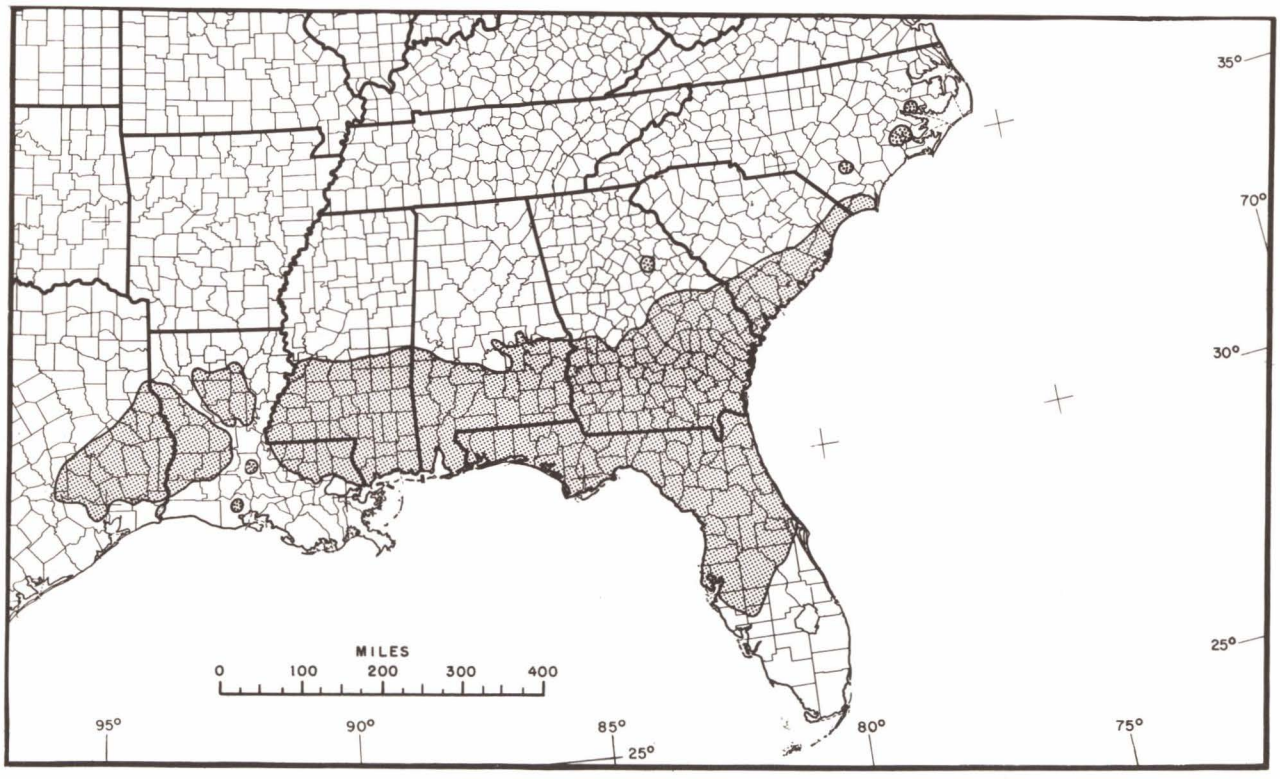

Figure 1.—Natural Range for Southern Magnolia

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Brush (1956) reports that "the present members are remnants of a very extensive group of North Temperate forest trees which formerly grew in central Europe, Siberia, western North America, Canada, and Greenland until they were pushed south by the great glaciers."

Magnolia grows best on moist, well-drained sites along streams or near swamps, but is also found on low moist sites and streamheads in upland areas. It is primarily a bottomland species occurring on the oldest alluvium and outwashes from uplands. It cannot withstand flooding and so does not occur on the first bottoms of the Mississippi River that were regularly flooded before the construction of levees. It grows in mixture with a variety of other hardwood species in stands varying from single trees to small groups. Pure stands rarely occur or are very limited in area.

On good sites, southern magnolia trees may be 60 to 80 feet tall and 2 to 3 feet in diameter at 80 to 120 years of age. Sweetbay is generally a little smaller, especially in diameter. The largest southern magnolia reported as of 1961 (on the Chickasawhay District, DeSoto National Forest, Miss.) was 17 feet 8 inches in circumference at breast height and 114 feet tall. In 1965, a tree 18 feet in circumference at breast height and 99 feet tall was reported in Baton Rouge, La. The record size sweetbay as of 1961 was 11 feet in circumference and 95 feet tall, growing in Gainesville, Fla.

Southern magnolia is a key species in only the beech-southern magnolia forest type. Among its other more important common tree associates are sweetgum, blackgum, yellow-poplar, oaks, white ash, hickories, sweetbay, red maple, and American and winged elms. Sweetbay also is a key species in only one forest type—sweetbay-swamp tupelo-red maple. Some of its more important tree associates in the various types are: black and swamp tupelo, sweetgum, water and willow oaks, white and green ash, water tupelo, black willow, and red maple.

Magnolia trees bear good seed crops practically every year under normal conditions, and seed-bearing trees as young as 10 years of age have been reported. The start of the optimum seed-bearing period is prob-

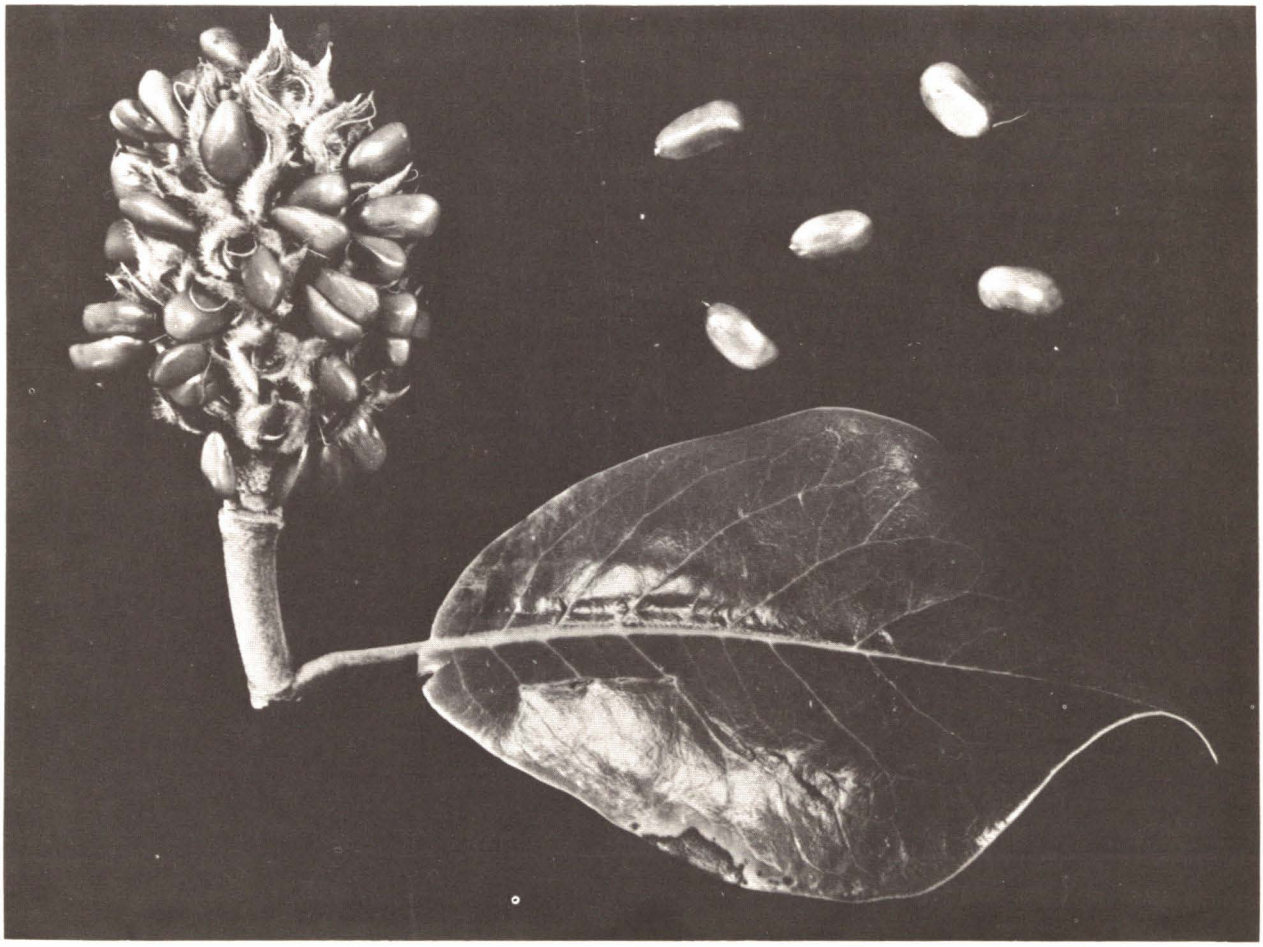

Figure 2.—Fruit, seed, and leaf shape of southern magnolia (7/10 normal size).

ably nearer 25 years under forest conditions. The seed is normally disseminated by birds and mammals, but some may be spread by heavy rains and possibly by wind. Seed of southern magnolia has a germinative capacity of about 50 percent, while that of sweetbay varies from 50 to 75 percent. In spite of this, reproduction of both species is erratic; both also sprout poorly but are fairly tolerant once established, especially while young. More light is required as the trees become older. Sweetbay is frequently an understory tree in black tupelo and baldcypress stands. Growth rate averages poor to medium, though it is quite rapid for the first few years under favorable conditions.

The flowers of the magnolias are white, numerous, and very attractive. Southern magnolia blossoms are the largest, 6 to 9 inches across, as compared to 2 to 3 inches across for sweetbay blossoms, which, however, have the sweetest odor. The fruit is an ovoid to cylindric cone, rose-colored, and 3 to 4 inches long by 1½ to 2 inches in diameter for southern magnolia; and dark red, 2 inches long and ½ inch in diameter for sweetbay. On opening, the flattened, obovoid, ¼- to ½-inch long seeds emerge, hanging suspended for a time by fine silky threads (fig. 2). The leaves are simple, alternate, elliptic or oval, with acute or obtuse apexes and wedge-shaped bases; the margins are entire. Southern magnolia leaves are shiny dark green above, rusty tomentose (covered with densely matted hair) below, coriaceous (leatherlike) and evergreen, 4 to 9 inches long and 2 to 3 inches wide. Sweetbay leaves are green above, finely pubescent (covered with soft hairs) and nearly white below, 3 to 6 inches long by 1 to 2½ inches wide, and in the South remain on the branches until new leaves appear in the spring.

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Figure 3.—Bark of southern magnolia.

Magnolia bark is ½ to ¾ inches thick, gray or light brown, and on older trees develops small appressed scales rarely more than 1-inch long (fig. 3).

COMMON NAMES

Southern magnolia is the favored common name for *M. grandiflora*, but it is also called evergreen magnolia and bullbay. Though *M. virginiana* is preferably called sweetbay by the Forest Service, it also goes by the names sweetbay magnolia, swampbay, southern sweetbay, evergreen magnolia, laurel magnolia, swamp magnolia, beaver-tree, whitebay, and white laurel. The lumber produced from both species is called simply magnolia.

SUPPLY

An accurate estimate of the total stand of sawtimber size magnolia for the early 1960's is not available. Because of the scattered occurrence of these species, forest surveys usually combine them and sometimes even include other hardwoods of limited frequence in the same group. Because of this, only rough estimates of timber volume are possible for these species. In 1945, the total stand of sawtimber-size southern magnolia was estimated as 1 billion board feet; no attempt was made to estimate the amount of sweetbay. Since then, it appears this volume has been decreasing. Table 1 shows the latest available sawtimber volumes for the principal commercial States.

Table 1.—*Sawtimber volume of southern magnolia and sweetbay combined*[1]

State	Volume Million bd. ft.	Period
Alabama	505.7	1951-53
Mississippi	327.6	1957
Louisiana	252.3	1953-54
Texas	200.5	1953-55
Arkansas	23.5	1959
TOTAL	1,309.6	

[1] Data were not available for Georgia, Florida, and South Carolina.

PRODUCTION

Lumber production figures for magnolia have varied greatly in amounts produced since they were first listed separately. After reaching a peak value of approximately 40 million board feet in 1937, production fell off, with periodic slight recoveries, to a little over 23 million board feet in 1942 and remained at about that level through 1960 when it was reported as 23,772,000 board feet. Unofficial estimates show that in 1966 this volume may have again reached close to 40 million board feet.

In addition to lumber, a considerable amount of magnolia was also used for veneer and plywood, an increasing market. Reports for 1960 show a total use of 56,953,000 square feet (surface measure) of magnolia veneer—about half of which went into containers.

In the same year, a total of 7,049,000 square feet (surface measure) of plywood was used by all industries combined. Most of this went into veneer, plywood, and millwork plants.

CHARACTERISTICS AND PROPERTIES

The sapwood of magnolia is creamy white, and the heartwood is light to dark brown, often with greenish-black to purplish-black streaks. The annual growth rings are distinct and easily seen with the naked eye. The wood is even textured and moderately heavy (35.5 pounds per cubic foot at 15 percent moisture content). It is fairly hard and straight-grained, closely resembling yellow-poplar with which it was marketed for a considerable time. (More recently, with the recognition of adaptability for special uses, it has been sold mostly under its own name.) It is moderately stiff, high in shock resistance, rather low in shrinkage, and has average nail-holding ability. It stays in place well when properly seasoned, is readily worked, glues satisfactorily, and takes paint, stains, and natural finishes well, but has only moderate to low durability if used under conditions favorable to decay. It imparts little if any odor or taste when used in food containers.

PRINCIPAL USES

Of the eight magnolia species, only southern magnolia and sweetbay are commercially important as a source of wood for manufactured products. The other six species are used chiefly for ornamental purposes.

Magnolia wood is utilized in two main classes of material, lumber and veneer, with short logs and bolts making up a third (but relatively unimportant) class.

The lumber is used principally in the manufacture of furniture, especially frames for upholstered items. This application accounts for most of the lumber used at the present time, and the Southern Hardwood Lumber Manufacturers Association estimated to be possibly as great as 90 percent.[2] The rest of the lumber is mainly used in framing material for boxes and other kinds of containers, with a small amount going into interior trim, cabinet work, doors, and other miscellaneous items. Twenty years ago, an important use was as slats for Venetian blinds, but this market has now almost vanished, except in a limited way, for very high-quality blinds.

Veneer is used mainly in the manufacture of containers and packages, particularly wire-bound boxes and fruit baskets. The rest of the veneer is chiefly used in the manufacture of plywood, with a small amount used as face veneer on items destined for painting, staining, or natural finish in interior trim, store fixtures, cabinet work, and the like. Most plywood produced is further remanufactured into such items as cabinet work and doors, with some material of the lower grades being used for containers.

Short logs and bolts make up only a very small part of the magnolia used in industry, and they are sawed directly into squares and other forms of the sizes needed for furniture and other wooden products.

[2] In correspondence, 1967.

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- Conducting forest and range research at over 75 locations ranging from Puerto Rico to Alaska to Hawaii.
- Participating with all State forestry agencies in cooperative programs to protect, improve, and wisely use our country's 395 million acres of State, local, and private forest lands.
- Managing and protecting the 187-million-acre National Forest System.

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